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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/998,264	12/24/1997	MICHEL ARMAND	UTSB:646	2372

27160 7590 12/07/2001

PATENT ADMINSTRATOR  
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EXAMINER

CHANEY, CAROL DIANE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 12/07/2001

29

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-29

**Office Action Summary**

Application No.

08/998,264

Applicant(s)

ARMAND ET AL.

Examiner

Carol Chaney

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 November 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-22, 24, 26-39, 41-59, 61, 62, 64 and 65 is/are pending in the application.
- 4a) Of the above claim(s) 1-22, 24, 50-59 and 61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 26-39, 41-49, 62, 64, and 65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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### ***Continued Prosecution Application***

The request filed on 10-10-01 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 08998264 is acceptable and a CPA has been established. An action on the CPA follows.

### ***Double Patenting***

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 27 is rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 4 of prior U.S. Patent No. 5,910,382 A. This is a double patenting rejection.

Both the instant application and U.S. Patent No. 5,910,382 A claim a cathode material with an olivine type structure and an empirical formula  $\text{LiFe}_{1-x}\text{Mn}_x\text{PO}_4$  or  $\text{LiFe}_{1-x}\text{Ti}_x\text{PO}_4$ . In the instant application claim 62, 'M', 'D', 'T' and 'Q' can all contain Ti and likewise, both 'M' and 'T' recited in claim 62 can contain Fe and also can contain Mn.

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The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

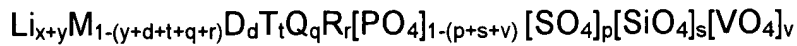
Claims 26, 28-39, 41-49, 62, 64, and 65 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 5,910,382. Although the conflicting claims are not identical, they are not patentably distinct from each other because as discussed above, both sets of claims encompass identical cathodic material compounds.

### ***Claim Rejections - 35 USC § 102/103***

Claims 23, 25, 28, 30 and 31 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shackle (US Patent 5,721,070), for reasons of record.

Shackle discloses compounds of the form  $M_xT_yA_z$  where M is an alkali metal ion, T is a metal ion with a plurality of stable oxidation states, and A is a multi element anion such as silicate, titanate, and manganate as cathode active materials. Among the

compounds disclosed by Shackle is  $\text{LiMn}(\text{VO}_4)$  which corresponds to applicants' compound



when  $y$ ,  $d$ ,  $t$ ,  $q$ ,  $r$ ,  $p$ , and  $s$  are 0;  $x=1$  and  $v=1$  (Note column 5, lines 10-31.)

Mixing carbonaceous, electronically conductive materials with the cathode active materials is also taught by Shackle. (Note column 3, lines 18-24.)

The ranges of compounds disclosed by Shackle differs from the range of compounds disclosed by the applicants. However, the classes of compounds disclosed by Shackle and by the applicants overlap. Specific compounds disclosed by Shackle such as  $\text{LiMn}(\text{VO}_4)$  anticipate applicants' claimed compounds, or, in the alternative, the claimed compounds would have been obvious to the skilled artisan based upon the disclosure of Shackle.

Applicants argue the compound  $\text{LiMn}(\text{VO}_4)$  disclosed by Shackle is not a modified olivine structure, and cite the article "Ambient and High-Pressure Structures of  $\text{LiMn}(\text{VO}_4)$  and its  $\text{Mn}^{+3}/\text{Mn}^{+2}$  Redox Energy", J. Solid State Chem., 128, 257-272 (1997) in support. As noted by the applicants, the compound  $\text{LiMn}(\text{VO}_4)$  exists in a cubic spinel high-pressure phase. However, it is noted that the ambient pressure phase is described by Padhi et al. as an orthorhombic phase. (page 267, "Experimental Procedure") Since the crystal system of olivine is also orthorhombic, . Pahdi et al. appear to support the rejection of record over Shackle et al. See, for example,

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<http://www.brocku.ca/earthsciences/people/gfinn/minerals> for a discussion of the crystal structure of olivine materials.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.



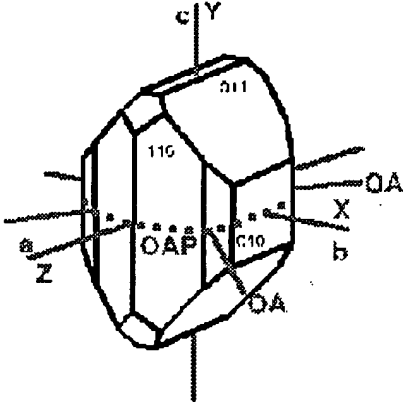
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette, may be reached at the telephone number (703) 308-0756. The official fax number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Carol Chaney  
Primary Examiner  
Art Unit 1745  
December 2, 2001

# OLIVINE

<b>General Formula:</b> $(\text{Fe,Mg})_2\text{SiO}_4$	<b>Sample:</b> PT-96	<b>System:</b> Orthorhombic
		
TITLE DESCRIPTION SCALE	TITLE DESCRIPTION SCALE	Block diagram showing the relationship between the crystallographic axes and the indicatrix axes.

## Optical Properties

<b>Colour Pleochroism</b>	usually colourless, darker colours correspond to higher iron content non pleochroic	<b>Form</b>	generally subequant anhedral grains or aggregates in intrusive and metamorphic rocks. Equidimensional or elongated euhedral grains in volcanics
<b>Relief RI</b>	high positive $n_{\alpha} = 1.636-1.827$ $n_{\beta} = 1.651-1.869$ $n_{\gamma} = 1.669-1.879$	<b>Cleavage</b>	not observed
<b>Birefringence Interference Colours</b>	0.033-0.052 up to third order	<b>Twinning</b>	not common
<b>Interference Figure Optic Sign 2V</b>	biaxial positive or negative 46-98°	<b>Optic Orientation</b>	elongate grains have parallel extinction and may be either length fast or slow
<b>Composition</b>	minor substitution of Mn, Zn, Ca, Ni, Cr or Al for Fe and Mg	<b>Alteration</b>	commonly alters to iddingsite and chlorophaeite, which are really mixtures of various minerals which cannot be identified, and serpentine. Alteration progresses from the edge and along cracks
<b>Occurrence</b>	pure Fo (Mg-rich) is restricted to metamorphosed carbonates, intermediate Fe-Mg olivine is common in mafic and ultramafic igneous rocks, Fe-rich olivine occurs in felsic rocks.	<b>Distinguishing Features</b>	high birefringence, distinctive fracturing, lack of cleavage, and alteration products.

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